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also be sessions on Friday, December 1. The annual meeting will be held in Boston, December 26 to 30.

THE second annual meeting of the Deutsche Gesellschaft für Vererbungswissenschaft was held in Vienna on September 25-27. A report in *Nature* says that, though technically a meeting of the German society only, in fact the congress was largely international in character, the visitors including representatives from England, America, Italy, Switzerland, Japan, Holland and the Scandinavian countries. Professor R. Wettstein presided, and the opening address was delivered by Professor E. Baur (Berlin). The principal discussions were opened by Professor Goldschmidt (Berlin) on "The Mutation Problem," and by Professor Ruedin (Munich) on "The Inheritance of Mental Defects." Demonstrations were arranged in the zoological laboratory of the university and in the Natural History Museum. Visits were made to the Biologische Versuchsanstalt (where Professor Steinach demonstrated his transplantation experiments in rats and guinea pigs) and to the principal libraries and art galleries in the town. Professor R. Hertwig was elected president for the ensuing year, and the society accepted his invitation to meet at Munich in 1923.

UNIVERSITY AND EDUCATIONAL NOTES

THE Joint Administrative Board of Columbia University and the Presbyterian Hospital has announced that the site for the new medical center has been transferred to the university and the hospital. The land site extends between One Hundred and Sixty-fifth and One Hundred and Sixty-eighth Streets from Broadway to the Hudson River. It is in excess of twenty acres, and is valued at \$4,000,000. It is the gift of Mrs. Stephen V. Harkness and Edward S. Harkness. It was also announced that an agreement has been confirmed between the Presbyterian Hospital, Columbia University and Mrs. Harkness, as donor, for the transfer of a fund of \$1,300,000 to Columbia University, for the endowment of educational and scientific work in the School of Medicine and the Presbyterian Hospital. An

additional \$1,000,000 has been given by Mr. Harkness toward the construction of the new Presbyterian Hospital, and \$1,000,000 for the school of medicine.

WE learn from the *Journal* of the American Medical Association that the first building for the new University of Rochester Medical School, a laboratory building, will be completed this month. Temporary offices of administration will be established in it. An appropriation of \$1,000,000 has been made by the city government for the new municipal hospital, which will adjoin the Strong Memorial Hospital. They will have a combined capacity of 460 beds. The university is to furnish the professional staff and the city the nonprofessional employees, under a contract recently approved.

MR. CHARLES C. SHARP has given \$17,000 to the Ohio State University as an endowment fund for the library of the department of chemistry. Mr. Sharp received the degree in civil engineering from the university in 1888.

THE new dairy industry and horticulture buildings at the branch of the University of California College of Agriculture at the University Farm, Davis, were formally dedicated on October 24. The principal addresses were given by President R. A. Pearson, of the Iowa State College, on "Dairy research and education," by Dr. W. H. Chandler, professor of pomology and vice-director of research in the New York State College of Agriculture at Cornell University, on "The outlook of agricultural research," and by President David P. Barrows, of the University of California.

DR. EDSON SUNDERLAND BASTIN, professor of economic geology in the University of Chicago, has been made chairman of the department to succeed the late head, Dean Rollin D. Salisbury.

At the New York Homeopathic Medical College and Flower Hospital the following appointments are announced: Israel S. Kleiner, Ph.D., dean; Wm. E. Youland, Jr., M.D., head of the department of pathology; Archibald McNeil, M.D., professor of bacteriology; Annis E. Thomson, M.D., instructor in bacteriology; Jenny Drennan, M.D., resident pathologist.

WILLIAM WALDEN RUBEY, B.A., has been appointed instructor in geology by the Yale Corporation, with assignment to Yale College.

DISCUSSION AND CORRESPONDENCE

THE EVOLUTION OF CLIMATES:

A REJOINDER

Two articles criticising and disagreeing with the writer's interpretation of the climatic history of the earth, and Dr. F. H. Knowlton's endorsement thereof, have been lately published in the *American Journal of Science*.¹

Some of these criticisms are based upon misconceptions of the writer's interpretations and others upon a radical difference as to the source of climatic control prior to the modern era.

In "The Evolution of Climates"² and in previous publications the following theses are advanced:

(1) That prior to the Modern Era, of complete solar control, a dual control prevailed, in which the heating effects of solar radiation were largely intercepted by a denser and more persistent mantle of clouds than has prevailed since the Pleistocene; and that solar heating effects were principally exercised upon and above the upper surface of this cloud-sphere, and were, therefore, conservative of the lesser source beneath.

(2) That wide variations in the intensity of "The Solar Constant of Radiation" may have occurred during geologic time, but these did not directly affect climates—for the order of the distributions of temperatures and of glaciations were not conformable to solar control.

(3) That during geologic time earth heat was made available by deformations and ruptures of the crust, etc., which from time to time inaugurated activities of great heat liberating potentiality, namely, the erosion of warm crustal materials and the exposure and transformation of radioactive substances.

¹ Professor A. P. Coleman (5) Vol. 1, No. 4, 315-319. Professor Chas. Schuchert, *ib.*, 320-324. This article is abridged from a rejoinder to these criticisms, which was denied publication in that journal.

² Baltimore, 1922.

(4) That upon the partial exhaustion of these increments, the quickly cooling continents frequently reached low temperatures and were glaciated (*a*) in the interiors and easterly sides, as least affected by ocean influences, as in Huronian and Cretacic times; (*b*) under belts or zones of maximum anti-cyclonic circulation, as in Permo-Carboniferous time; and, later, in the final chill of Pleistocene time, under belts of maximum cloudiness and precipitation. That oceans, by reason of high specific heat, stored successive increments of earth heat and fluctuated between narrower limits than continents until Pleistocene time, when they reached glacial temperatures in polar and middle latitudes. At this stage, they ceased to yield sufficient water vapor to maintain the integrity of the previous mantle of clouds in any latitude, and the earth having lost its last available increment of its original or planetary heat, ceased to be a cooling body and became a warming body by direct exposure to and the trapping of solar radiation converted into heat by contact with the surface. That land areas fluctuated through much wider limits or, as approximately fixed by Professor Schuchert, from 110° F. to -60° F., or through 170°, while oceans fluctuated between 85° and 55°.

(5) That in this process of slow and intermittent cooling by the loss of available increments of earth heat, water was a circulating agent of high efficiency, continuously cooling land areas, and, in part, bearing the heat thus derived to the oceans; the other part became latent in water vapor.

The writer does not consider the nebular hypothesis as part of his interpretation of geologic climates and their merging into those of the Modern Era, as indicated by Professor Coleman [*l. c.*, p. 316].

No glaciation is compatible with a warm earth (Professor Coleman, *l. c.*, p. 316) and the writer nowhere claims that it is; on the contrary, he holds that the earth having been screened from solar radiation by clouds, its continents were subject to such climatic variations as the available increments of earth heat were competent to maintain inside the layers of moist air and clouds which its warm oceans were capable of sustaining. Beneath this